Math

Department

Primary 6

First term

2016-2017



Name: ....

Class: 6/.........

Sheet 1 (The Ratio)

1) *Complete :-*

a) The ratio is ....

b) The ratio $\frac{5}{9}$ its antecedent is .... , its consequent is ....

c) L.E. 3 : P.T.30 = ... : .... (in the simplest form)

d) If **a** equals twice of **b**, then **a** : **b** = ... : ....

e) $\frac{3}{5} : \frac{1}{2}$ = ... : .... (in the simplest form)

f) If we multiply each of the two terms of a ratio by the same non zero number, then the original ratio and the resulted will be ....

2) *Write the ratio between each of the following in its simplest form*

a) 4.8 km , 1600 m
b) 180 dm^2 , 3.6 m^2
c) 18 months, 3 years.
d) L.E.6 , P.T. 1800
e) 300 gm and $1\frac{1}{2}$ kg
f) 40 min, one hour and quarter.

3) Sara had L.E. 500; she spent L.E. 150 and saved the rest. Find in the simplest form the ratio between :

a) The money she spent and the money she had.
....
b) The money she spent and the money she saved.
....

4) A rectangle of length 25 cm and width 20cm find the ratio between its width and its perimeter.
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Can you find the ratio between its area and its perimeter?
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Sheet 2 (The Ratio)

1) Complete:

a) The ratio between the side length of a square and its perimeter

= ……... : ……

b) The ratio between the side length of an equilateral triangle and its perimeter = ……... : ………

c) The ratio between the lengths of two sides of an equilateral triangle = ……... : ………

d) The ratio between the circumference of the circle and its diameter length

= ……... : ………

2) Choose the correct answer:-

a) If the area of a rectangle is 48 cm^2 and its width is 6 cm, so the ratio between its length to its width is ………..

(8 : 1 or 4 : 3 or 3 : 4 or 6 : 8)

b) $7\frac{1}{2} : 3\frac{1}{2} = 15 :$ …………

(11 or 7 or 6 or 15)

c) Maii has got 90 out of 100 in a test, then the ratio between her marks and maximum marks is ………..

(9 : 10 or 95 : 10 or 19 : 20 or 8 : 15)

d) The ratio between the lengths of two sides of a square and its perimeter = …………

(3 : 4 or $\frac{1}{4}$ or $\frac{4}{1}$ or $\frac{1}{2}$)

3) A school is of 500 pupils. If 480 pupils of them are successful, find the ratio between the number of the successful pupils to the number of the total number of the pupils.

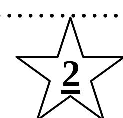
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4) Simplify the ratio $3\frac{1}{3}$: 6.25 to its simplest form.

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Sheet 3 (The ratio and its properties)

1) *Complete:-*

a) The ratio between the side length of an equilateral triangle and the sum of two of its sides = ... : ....

b) If the length of a side of a square equals the length of a side of an equilateral triangle then the ratio between their perimeters = …… : …..

c) The ratio between any two sides of a rhombus = ... : ....

d) If a : b = 3 : 7, and a = 15 kg , then b = ... gm.

e) If $\frac{a}{b} = \frac{2}{5}$, and b = 35 then a = ...

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2) The height of a building is $\frac{1}{5}$ of Cairo Tower the if height of Cairo Tower is 180 m, find the height of the building

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3) The perimeter of a rectangular shaped land is 360 m and the ratio between its dimensions is 3 : 2 . Find the area of this land.

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4) Omar has $\frac{3}{7}$ of Ahmed has .if Ahmed has L.E. 210. Find how much money Omar has.

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5) The ratio between Amr's weight and Hidey's weight is 5 : 1 and the difference between there weights is 64 kg. Find the weight of each of them.

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5) The ratio between two numbers is 5 : 9 and the sum of them is 280 . Find the two numbers.

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....



Sheet 4 (The Ratio of three numbers)

1)Complete:-

a) $\frac{1}{2}$: $\frac{1}{3}$: $\frac{1}{6}$ = …….. : …….. : ……..

b) 4 kg : 5000 gm : 3.5 kg = …….. : …….. : ……..

c) 3.12 : 5.2 : 7.8 = …….. : …….. : …….

d) 2 m : 400 cm : 10 dm = …….. : …….. : 1

e) 210 sec : 2.5 min : $\frac{1}{2}$ hrs = …….. : …….. : …….

2)_Choose the correct answer :

a) If a : b = 2 : 3 and b : c = 6 : 5, then a : c = …….. : ……..

(4 : 3 or 4 : 5 or 6 : 5 or 3 : 4)

b) $\frac{1}{2}$: $\frac{3}{4}$: $\frac{2}{3}$ = …….. : …….. : …….

(6 : 9 : 8 or 6 : 8 : 9 or 8 : 9 : 6 or 8 : 6 : 9)

c) In Δ ABC, m (< A) = $\frac{2}{3}$ m (< B), and m (< C) = 2 m (< A). Then the measure of the smallest angle is ………..

(40° or 80° or 90° or 120°)

d) If $\frac{a}{b}$ = $\frac{5}{9}$ and $\frac{b}{c}$ = $\frac{3}{4}$, then a : c = …….. : ……..

(5 : 36 or 5 : 27 or 5 : 12 or 5 : 4)

3) The ratio between ages of three persons is 3 : 4 : 9 and the difference between the third and the first is 54 years. Find the age of each person.

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4) The ratio between three measures of the angles of a triangle is 1 : 5 : 4 . Find the measure of each angle.

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Sheet 5 (The Rate)

1) *Complete:-*

a) The ratio between two quantities of different types is called ………..…….

b) Average speed = $\frac{\dots\dots\dots}{time}$

c) A car covered a distance of 180 km in 1.5 hours. Then the average speed of this car is ……….. km / hr

d) A = $\frac{1}{2}$ B, then A : B = …….. : ……..

e) A runner runs 640 m in 80 seconds, then his average speed is ….….… m/sec

f) If the average speed of a train is 90 km/hr and the covered distance is 315 km, then the time of the trip is ……….. hours.

2) If three machines are needed to irrigate 32 feddans every day, calculate how many machines are needed to irrigate 256 feddans in one day?

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3) A car consumes 10 litres of benzene to cover 140 km. **Find**:

a) The number of the litres of benzene that the car needs to cover 238 km.

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b) The distance that the car covers to consume 15 litres.

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4) A car traveled from Cairo to Qena in 6 hours, if the distance between the two cities is 651km, then calculate the average of the speed of the car.

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Sheet 6 (The Proportion)

1) Complete:-

a) The proportion is ……………………………………………………………………….

b) From the properties of proportion, the product of the extremes = ………..

c) The forth proportion of 3 , 15 and 6 is …………

d) If $\frac{5}{2x} = \frac{3}{30}$ then x = ………..

e) This table shows the relation between the distance in km and the time in hours which a car covers in that time :

Distance	………..	240	400	………..
Time	2	………..	5	7

The speed of the car = ………….. km. /hr.

2) 3 boxes of soft drink hold 36 bottles. How many boxes do we need to hold 120 bottles?

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3) Dina bought 5 T-shirts for L.E. 175. Find how many T-shirts can be bought with L.E. 315, and then find the price of 13 T-shirts.

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4) Complete the missing term in the following proportion:

a) 5, ……, 15, 9

b) …….. , 3, 21, 9

c) 4, 5, 8, …….

d) 2 , 3 , ……… , 6



Sheet 7 (The Drawing Scale)

1) Complete:-

a) Drawing scale is ……………………………………………………

b) The real length = ……….. : …………

c) If the length of a building is 20 m , then its height in cm on a picture of drawing scale 1 : 100 will be ………………

d) If the length on a drawing is 2 cm and the real length is 8 metres, then the drawing scale = …….. : ……..

e) If the drawing scale of a map is 1 : 30 000, so the length 1 cm on the map represents …….. m on reality.

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2) Choose the correct answer:-

a) In magnification, the real length ………… the drawing length.

(> or = or <)

b) If the real length of an insect is 0.3 mm. and the drawing length is 1500 m, then the drawing scale will be ………

($\frac{1}{5}$ or $\frac{1}{500}$ or $\frac{1}{5000}$ or $\frac{1}{50000}$)

c) If the drawing scale is 1 : 200 and the drawing length is 4 cm, then the real length = …….. m

(6 or 8 or 10 or 12)

d) The distance between two cities is 100 km, if it is represented on a map as $1\frac{2}{5}$ dm, then the drawing scale of this map is ………

(7 : 50 or 7 : 500 or 7 : 5 000 or 7 : 5000 000)

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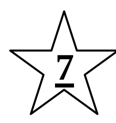
3) A camera enlarges articles in the ratio 200 : 1, if the real length of an insect is 2 mm, find its length in a photo by this camera.

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4) Shady found the height of the Cairo Tower in a photo is 12 cm. If the real height is 180 m. Find the drawing scale of this picture.

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Sheet 8 (The proportion division)

1) Divide 360 among three persons in the ratio 4 : 3 : 2.

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2) In a school there are 350 pupils in form one. If the ratio between the number of pupils in form one to that in form two to that in form three is 7 : 4 : 3, find the number of pupils in forms two and three.

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3) In a train, there are 700 passengers. If the number of the passengers in the first class = $\frac{2}{3}$ the number in the second class and the number of the passengers in the second class = $\frac{4}{5}$ the number in the third class. Find the number of the passengers in each class.

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4)A man died leaving L.E. 24 000 to be distributed among his wife, 3 sons and a daughter ,if the wife takes $\frac{1}{8}$ of the whole money and the rest will be divided among the sons and the daughter so that the son takes twice as the daughter. Find the share of each of the wife, the son and the daughter

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5) Divide L.E. 1 250 among three person, the first took what $\frac{4}{3}$ the second took; the third took the same as the second took. Find the share of each one.

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Sheet 9 (The percentage)

1) Complete:-

a) The percentage is ……………………..……………………………………..

b) 1 – 20 % = ……….

c) 42 % + …… % + 15 % = 1

d) 45 % = ……..…. (in a decimal form)

e) 5 : 16 = ……….. %

2) Choose the correct answer:-

a) 45 % = $\frac{9}{\dots\dots}$

(10 or 20 or 40 or 50)

b) 20 % of L.E. 500 = ………..…

(520 or 50 or 100 or 200)

c) If 12 % of a number is 180, then the number will be ……..…..

(1250 or 1 500 or 1 005 or 1 205)

d) 30 % – 0.3 = ……..…

(27 % or zero or 0.27 or 27)

e) 75 % of 100 = 25 % of …..……

(100 or 200 or 300 or 400)

3) In a school, there were 500 pupils; on a day 50 pupils were absent. Find the percentage of those who came that day

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4) The monthly salary of an employee is 470 pounds he spends 360 pounds and saves the rest. Find the percentage of the money he saves to the total salary

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Sheet 10 (The percentage)

1) *Choose the correct answer:-*

a) Shaker got 90 % out of 50 in math test, then his mark is ....
(90 or 4 500 or 45 or 21)

b) If goods are sold for L.E. 3 210 with 7 % profit, then the cost of the goods will be L.E. = ...
(3 217 or 3 434.7 or 224.7 or 3 000)

c) The sum of L.E. 500 is deposited in a bank gives a rate of 10 % at the end of the year the sum becomes ....
(510 or 550 or 10 or 50)

d) 7 % × 5 = ...
(350 or 0.35 or 3.5 or 35)

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2) Basel deposited L.E. 2 000 in a bank with a simple interest of 9 % yearly.

Find:

a) The profit at the end of one year.
b) The credit at the end of the year.

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3) A merchant of bicycles found that if he sells a bicycle for L.E. 180, his loss will be 10 %. Find the cost of the bicycle.

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4) A family pays 35 % from its monthly income on housing and clothing, 50 % on food and saves the rest. Find how much will this family save monthly if its monthly income is L.E. 840?

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Sheet11

(The relation between the geometrical shapes)

1) *Complete:*

a) The four sides are equal in length in each of……………. and …………

b) The two diagonals are equal in length in each of …………and ………..

c) The opposite angles are equal in measure in each of ……… , ………, ……… and ………

d) The sum of measures of the two consecutive angles equals 180^{o} in each of ……… , ……… , ……… and ………

e) The four angles are equal in measure in each of ……… and ……….

2) *Choose the correct answer:*

a) The parallelogram in which two adjacent sides are equal in length is called a …………. (square or rectangle or rhombus or trapezium)

b) The rhombus whose one of its angles is a right angle is called ……….. (square or rectangle or rhombus or trapezium)

c) The rectangle whose two adjacent sides are equal in length is called ………… (square or rectangle or rhombus or trapezium)

d) The rhombus whose diagonals are equal in length is called ………… (square or rectangle or rhombus or trapezium)

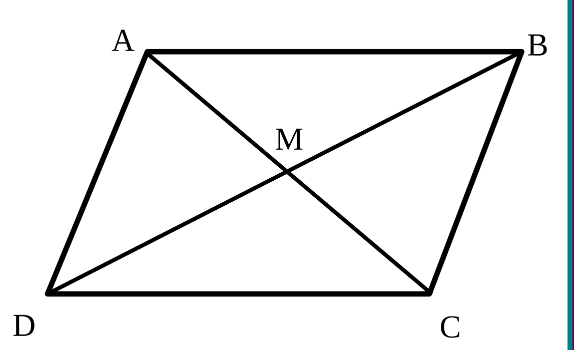
e) The rectangle whose diagonals are perpendicular is called ………… (square or rectangle or rhombus or trapezium)

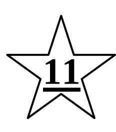
3) *Complete using the opposite figure:*

a) AB = ……… , $\overline{CB}$// …….

b) If m(∠ C) = 120 ° then m(∠ A) = ……..
, and m(∠ AMB) = ……..

c) ABCD is called …………………





Sheet 12 (Volume of cube)

Volume: is the number of cubic units which form the solid

The Volume of a cube = edge length × edge length × edge length
= base area × edge length
The base area of a cube = volume ÷ edge length
Edge length of a cube = volume ÷ base area

1) Find the volume of the cube of side length 7 cm.

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2) Find the volume of a cube of side length :

a) 10 cm b) 4 cm

c) 8 cm d) 12 cm

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3) Find the volume of the cube if the sum of its edge lengths is 60 cm.

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4) Find the volume of a cube, if its base area is 36 cm^2

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5) Find the volume of a cube, if the sum of its side lengths is 132 cm

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Sheet 13

(Volume of a cuboid)

The Volume of a cuboid = length × width × height
= base area × height
The base area of a cuboid = volume ÷ height
Height of a cuboid = volume ÷ base area

1) How many cubic centimeters are needed to construct a cuboid of dimensions 12 cm , 6cm and 5 cm ?

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2) Find the volume of a cuboid of a square base of side length 8 cm and height 5 cm ?

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3) Find the length of a cuboid of volume 3060 cm^3, width 12 cm and height 15 cm ?

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4) Which is greater in volume a cuboid of dimensions 9.4 cm, 12.6 cm and 8 cm or a cuboid of base area 108 cm^2 and height 9 cm.

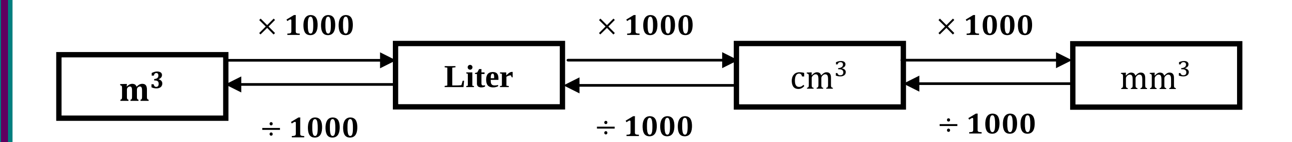
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Sheet 14 (The capacity)

Capacity: is the amount that the container can hold.
The litre: is the unit of measuring capacity.
The litre: is the capacity of a cube of edge 1 dm (1dm = 10 cm)
One litre = 10 cm × 10 cm × 10 cm = 1000 cm^3

How to change between the units of capacity



1) Convert each of the following:

a) 74 litres = ……… cm^3 b) 5.62 dm^3 = ……… litre

c) 962 litres = ……… m^3 d) 45 cm^3 = ……… ml

e) 0.62 dm^3 = ……... cm^3 f) 5.49 m^3 = …….. cm^3

2) Find the capacity of the cube of edge 18 cm long.

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3) Find the capacity of a cuboid of inner dimensions 21 cm, 17 cm and 14 cm.

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4) A cuboid shaped box which its outer dimensions 54 cm, 40 cm and 38 cm , and the thickness of its material is 1.5 cm. Find the capacity of the box in litres, if : a) The box with a lid b) The box without a lid

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5) The edge of a metallic cube is 15 cm long. It is melted and reshaped as a cuboid of base dimensions 8 cm and 10 cm. Find the height of the cuboid to the nearest cm.

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6) A piece of iron takes the shape of a cuboid of dimensions 24 dm, 16 dm and 8 dm. It is melted and changed into small cubes each with edge 8 cm . Find the number of these cubes.

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7) A piece of metal is dropped in a cuboid shaped water tank of base area 288 dm^3, if the height of water in the tank has increased by 60 cm. Find the volume of the metallic piece.

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8) A cuboid tank whose inner dimensions are 12 cm, 25 cm and 40 cm is full of honey, if the price of one litre is L.E 25 . Calculate the price of honey.

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Sheet 15

(The kinds of statistical data)

1) Complete each of the following:

a) The data that describes the conditions of individuals using words is called ……………………..

b) The data that consists of numbers to represent a certain phenomenon is called ……………………..

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d) Read the data in the opposite milk pack then classify the data into descriptive data and quantitative data.



The descriptive data are ……………………………………
The quantative data are ……………………………………..

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e) The opposite figure shows a model sheet to one of the personal cards of a pupil in a school.
Look at it well then extract from it the descriptive data and quantative data.
Write your own personal data on this sheet.

A personal card of a pupil

School name: ………………
Grade: ………………………
Class:………………………..
School year:…………………
Birthday:…………………….
Blood type:………………….
Tel. house:…………………..
Mobile:…………………...



Sheet 16
(Collecting descriptive data)

1-The following table shows the produces amount of fruit in tons by a farm in a year:

Fruit	Mango	Apple	Orange	Banana	Watermelon	Total
No. of tons	12	8	16	10	14	60

a) Which fruit has the greatest number of produced tons and what the percentage of it?

b) Which fruit has the least number of produced tons and what the percentage of it?

c) How many kgs. of watermelons are produced and what is the order of the watermelons among the produced fruit if you arrange them according to the produced amount of each kind descendingly?

d) How many tons of bananas are produced and what is the percentage of them?

2- A company for producing chips applied a survey to 40 persons to choose their favorite flavor ,so their responses were as follows:

Tomato – Cheese – Shrimp – Shrimp – Salt – Spices – Tomato – Spices – Salt – Cheese – Spices – Spices – Salt – Cheese – Shrimp – Salt – Spices – Salt – Cheese Shrimp – Tomato – Shrimp – Spices – Salt – Cheese – Shrimp – Salt – Salt – Spices Shrimp – Cheese – Shrimp – Salt – Tomato – Tomato – Cheese – Spices – Salt – Salt – Shrimp.

Form the simple frequency table for this data.

a) What flavor is the most popular? And what is its percentage?

b) What is the order of the different flavors according to the number of persons who choose each one descendingly?



Sheet 17
(Collecting quantative data)

1- ***Complete:***

a) The difference between the minimum and the maximum values of the given data is called …………………………..

a) The range of the values : 5 , 2 , 9 , 6 , 6 and 4 is ……………..

b) The length of the set of : 5- , 9- , 13- , ….. and so on is ……………..

2- ***Here are the heights of 50 persons in centimeters:***

155	183	163	181	186	144	199	150	182	166
197	126	188	158	153	130	163	166	154	173
137	163	146	198	164	156	173	177	157	118
138	187	178	173	189	143	147	142	176	160
170	194	154	167	149	112	196	128	126	156

Using the pervious data

a) Find the shortest, the highest ones, and the range of heights.
b) Form the frequency table of sets, the length of each set is 10 cm.
c) What is the percentage of persons whose heights are equal to 180 cm. or more?

3-The following table gives the frequency distribution of the daily wages in L.E for the workers in a factory:

Wages (sets)	50 -	60 -	70 -	80 -	90 -	100 -	Total
No. of workers (frequency)	8	10	16	10	10	7	65

a) How many workers whose wages are from 80 to less than 90 pounds?

b) How many workers whose wages are the least? What's their percentage?

c) How many workers whose wages are70 pounds or more? What's their percentage?



Sheet 18

(Representing the statistical data by the frequency curve)

1- The following data represents the marks in the mathematics test for students in one classroom:

Sets	0 -	10 -	20 -	30 -	40 -	50 -
Frequency	6	10	15	20	8	4

a) Draw the frequency curve for this distribution.

b) Complete:

1) The number of students whose marks are less than 20 = …………….

2) The number of students whose marks are 40 and more = …………….

2-The following table gives the frequency distribution of the marks for 40 pupils in the mathematics exam:

Sets	10 -	20 -	30 -	40 -	50 -	Total
Frequency	5	7	12	9	7	40

a) Draw the frequency curve for these data?

b) Which set of marks has the greatest frequency?

c) What is the percentage of success if the mark of success is 30 marks?

3- The following data represent the daily income of 40 persons in L.E:

Sets	10 -	20 -	x -	40 -	50 -	Total
Frequency	5	8	11	9	y	40

a) Find x and y.

b) Find the set of the greatest frequency.

c) Find the number of persons who get L.E 30 and more daily.